AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (original): An ink-jet recording head including a passage-forming substrate having a pressure generating chamber communicating with a nozzle orifice defined therein and a piezoelectric element provided on a region of said passage-forming substrate via a vibration plate, said region corresponding to said pressure generating chamber, comprising:

a sealing member defining a piezoelectric element holding portion securing a space not to hinder a movement of said piezoelectric element, said sealing member being joined onto a side of said piezoelectric element of said passage-forming substrate; and

at least one sealed portion as a space provided in a member other than said sealing member, communicating with said piezoelectric element holding portion and shielded from outside air.

2. (currently amended): The ink-jet recording head according to claim 1, wherein an increase in humidity of said piezoelectric element holding portion is prevented by said sealed portion.

3. (original): The ink-jet recording head according to claim 1, wherein humidity absorbent is provided in said sealed portion.

4. (original): The ink-jet recording head according to claim 3, wherein said humidity absorbent is exchangeable.

5. (original): The ink-jet recording head according to claim 1, wherein a dry fluid is filled in said sealed portion.

6. (original): The ink-jet recording head according to claim 5, wherein said dry fluid is an inert fluid.

7. (original): The ink-jet recording head according to claim 1, wherein pressures in said piezoelectric element holding portion and said sealed portion are set equal to the atmospheric pressure or higher.

8. (original): The ink-jet recording head according to claim 7, wherein pressure adjusting means for adjusting the pressure in said sealed portion to be approximately equal to the atmospheric pressure is provided in a wall defining said sealed portion.

9. (original): The ink-jet recording head according to claim 7, wherein said dry fluid is compressed and filled in said sealed portion.

10. (original): The ink-jet recording head according to claim 9, wherein said dry fluid is supplied from said sealed portion into said piezoelectric element holding portion to maintain the pressure in said piezoelectric element holding portion approximately constant.

11. (original): The ink-jet recording head according to claim 1, wherein a drive circuit for driving said piezoelectric element is provided on said sealing member, and the drive circuit is sealed by said sealed portion.

12. (original): The ink-jet recording head according to claim 1, wherein said passage-forming substrate consists of a single crystal silicon substrate, said pressure generating chamber is formed by anisotropic etching, and respective layers of said piezoelectric element are formed by deposition and lithography methods.

13. (original): The ink-jet recording head according to claim 1, wherein said passage-forming substrate is formed of ceramics, and the respective layers of said piezoelectric element are formed by either pasting of green sheets or printing.

14. (original): The ink-jet recording head according to claim 1, wherein said piezoelectric element is a longitudinal vibration type piezoelectric element expanding and contracting in an axis direction, and said longitudinal vibration type piezoelectric element having piezoelectric materials and electrode forming materials alternately stacked.

15. (currently amended): An ink-jet recording apparatus comprising the ink-jet recording head according to any, one of claims [[1]] 11 to 14.

16. (original): An ink-jet recording apparatus including an ink-jet recording head having a passage-forming substrate with a pressure generating chamber communicating with a nozzle orifice defined therein, a piezoelectric element provided on a region of said passage-forming substrate via a vibration plate, said region corresponding to said pressure generating chamber, and a sealing member defining a piezoelectric element holding portion securing a space not to hinder a movement of said piezoelectric element, said sealing member being joined onto a side of said piezoelectric element of said passage-forming substrate, said ink-jet recording apparatus comprising:

at least one sealed portion as a space provided in a member other than said sealing member, communicating with said piezoelectric element holding portion and shielded from outside air.

17. (currently amended): The ink-jet recording apparatus according to claim 16, wherein said sealed portion is for preventing an increase in humidity of said piezoelectric element holding portion.

18. (original): The ink-jet recording apparatus according to claim 16, wherein humidity absorbent is provided in said sealed portion.

19. (original): The ink-jet recording apparatus according to claim 18, wherein said humidity absorbent is exchangeable.

20. (original): The ink-jet recording apparatus according to claim 16, wherein a dry fluid is filled in said sealed portion.

21. (original): The ink-jet recording apparatus according to claim 20, wherein said dry fluid is an inert fluid.

22. (original): The ink-jet recording apparatus according to claim 16, wherein pressures in said piezoelectric element holding portion are set equal to the atmospheric pressure or higher.

23. (original): The ink-jet recording apparatus according to claim 22, wherein pressure adjusting means for adjusting the pressure in said sealed portion to be approximately equal to the atmospheric pressure is provided in a wall defining said sealed portion.

24. (original): The ink-jet recording apparatus according to claim 22, wherein said dry fluid is compressed and filled in said sealed portion.

25. (original): The ink-jet recording apparatus according to claim 24, wherein said dry fluid is supplied from said sealed portion into said piezoelectric element holding portion to maintain the pressure in said piezoelectric element holding portion approximately constant.

26. (original): The ink-jet recording apparatus according to claim 24, further comprising: pressure detecting means for detecting the pressure in said sealed portion; and informing means for informing a user of specified information in a case where a detection result of the pressure detecting means does not satisfy a specified condition.

27. (original): The ink-jet recording apparatus according to claim 16, further comprising: ink supplying means for supplying ink to said ink-jet recording head, said ink supplying means being detachably held thereon, wherein said sealed portion and said ink supplying means are formed integrally.